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Herbarium. According to Karl Mueller (Rabenh. Krypto-Fl. Lief. 4, p. 214), the fruit is exceedingly rare and he was only able to examine fruiting specimens from America. In Austin's "Hep. Bor-Amer. Ex." *No. 145* is *Riccia natan; var. terrestris* in fruit; the capsule measures 1 mm. in diam., the spores .06 mm.; Mueller says .045 mm.-.055 mm., with 40 blunt papillae round the margin but gives a figure with about 15.

Austin published his tickets for his "Exsiccatae" in book form. In my copy, by the margin of *No. 145*, he has written *Riccia terrestris* Austin. A curious character of the species is that the teeth are coloured. The rhizoids are described as being smooth, not papillose within as in *Riccia*; I have seen some that are faintly papillose and others that have delicate strands in them, some spiral.

The type specimens from Africa are deposited in the Manchester Museum.

MANCHESTER, ENGLAND

A PRELIMINARY REPORT, WITH NOTES, ON THE LICHENS FOUND NEAR THE CINLHONA BOTANICAL STATION, JAMAICA, BRITISH WEST INDES

CHARLES C. PLITT

[*Concluded from July number*]

FOLIOSE FORMS

I am placing at the head of this group *Anaptychia angustifolia* and *Alectoria Loxensis*, both really more at home among the fruticose forms. These two, however, simulate a foliose habit, growing over low mosses and hepatics, closely appressed to the ground. The two plants look very much alike; so much so, that in my first collection I gathered both, thinking at the time that I had only the Anaptychia. *A. angustifolia* grows in partly illuminated and in very sunny situations; in the former places I could not find it in fruit, but in the latter, it fruited copiously. It was quite common. *Alectoria Loxensis* is much rarer, and was found only in the more sunny places. Other species of Anaptychia collected are the following: *A. comosa*, *A. hypoleuca*, and *A. hypoleuca* f. *sorediifera*. *A. comosa* was found only occasionally, but *A. hypoleuca*, and its form *sorediifera*, are quite common, growing on ledges of rock, exposed to the brightest sunshine.

It is hard to say which of all the interesting genera belonging here interested me most, whether Cora, Dictyonema, Sticta or Leptogium. *Cora pavonia* was met at an altitude of about 4500 feet, and from that altitude on up to 5500 feet it was met with frequently. It is found on the ground and on tree trunks. It can grow in quite sunny situations, and also in moist somewhat shaded places, where it covers the ground. In the sunny places, and on tree trunks, it is less at home, although specimens can reach quite a large size, many times larger than when growing in the moist places where they are crowded.

Dictyonema sericeum is found only on decaying logs, and only in rather shaded situations. I found it only at altitudes of 5000–5500 feet. Wherever found, it often formed patches covering many square inches. Of course, both Cora and Dictyonema interested me, both being Hymenomycetous Lichens; but Sticta, and its close ally Lobaria, and Leptogium, also attracted my attention, because of their number and variety of forms. They grew, too, in a variety of situations. It was noted, too, that the difference in form of some species was due to the difference in habitat. *Sticta damaecornis* growing in deep shaded places was inclined to have very narrow thalli, in more sunny places the thalli were broader.

I have already stated, that in the deep shaded ravines, almost no Lichen life could be discovered, although there was still enough light for many species of Hepaticae. But, of all Lichens, Sticta and Leptogium seem best able to adapt themselves to grow in the deep shade. Both have a most interesting way of accommodating themselves to the small amount of light that finds its way down to them, by extending their narrow thalli horizontally outward from the tree trunk, and growing more or less spirally around it, instead of lying closely appressed to it. This peculiarity of growth is, of course, not confined to Sticta and Leptogium, some Hepatics and Mosses behaving in the same way; and the Leptogium observed was growing on a moss.

How many species of Sticta I collected, I am not yet prepared to say. It may be only four, it may be twice that number, the variety of shape being only due to difference in habitat and environment. *Sticta aurata* and *Sticta crocata* were equally plentiful and were found in almost similar situations, always on tree trunks, and always in sunny places. *S. damaecornis*, and *S. tomentosa* grew in shady places, the latter on the ground and the former on tree trunks, varying much in width of thalli, according to the amount of illumination.

Of Lobaria, four different species were found; *L. corrosa*, *L. crenulata* (?), and *L. quercizans*, found on tree trunks, and *L. dissecta* (?), which grew on moss-covered rocks.

Species of Sticta and Lobaria were observed almost everywhere. Not a walk could be taken without finding one or more of the species covering the ground, some rocky ledge, or tree trunk. Not so however, with Parmelia, which was very much less common, notwithstanding the number of different species found. It was found much less frequently, was generally restricted to the tree trunks, and its growth was inclined to be dwarfish. The most important species of Parmelia found, are the following: *P. cetrata*, possibly two varieties; *P. cristifera*, *P. perlata*, *P. sinuosa*, *P. laevigatula*, *P. pilosella*.

Species of Leptogium were found very frequently, eight, or perhaps more, different species having been collected. They were, of course, at their best immediately after a rain, when beautiful specimens could be found even in places where one previously had failed to observe them, because the rain had swollen up the thalli, and had changed a more or less shrivelled up and perhaps unsightly crust into a thing of beauty. How wonderfully prominent would then their fruits stand out! It is hard to say which of these species impressed me most, when thus swollen, whether *L. bullatum* with its immensely swollen apothecia, or *L. phyllocarpum* with its apothecia prettily decorated with small thalline outgrowths, or *L. marginellum* with its numerous, although rather small marginal apothecia. Other Leptogium species observed are: *L. foveolatum* (?), *L. lacerum*, *L. phyllocarpum* v. *isidiosum*, and *L. tremelloides* in several forms.

Peltigera, too, was frequently met with. All over the garden grew *P. canina*. It, too, was found in shady places along the trails, where *P. polydactyla* was also found. On an exposed rocky ledge, where the sun could shine on it much of the day, grew *P. canina* v. *laciniata*, so very different from the species, when growing in shady places, that perhaps Mr. Merrill is right in giving it a new varietal name.[7]

But one species of Physcia was found, *P. obscura* v. *endococcina*. It grew on rocky ledges in rather open places. It was not very abundant. Instead of Physcia, one here finds much Anaptychia.

Again, but one species of Dermatocarpon was found, *D. miniatum*. It was not very abundant, only one or two ledges seeming suited for its development. In this connection, I can add that I was rather surprised not to find any species of Gyrophora or Umbilicaria. Rocky ledges were there in abundance that seemed ideal habitats for these plants, but none were found.

Pannaria was also found, but I have thus far only determined *P. pannosa*, a very pretty species, not very common, which was found growing on tree trunks in shady ravines. Its interesting prothallus, persisting, and of the apperance of a thick felt-like black nap, is sure to attract attention. Closely related to Pannaria is *Coccocarpia pellita*, which is at home on rocks exposed to the broad sunshine, and is very common.

One species of Coenogonium was found, it may be *C. Leprieurii*, but the hyphae are much broader than the diameter given for that species. One species of Calcium was also found. It seems to be *C. salicinum*. *Erioderma Wrightii* was found in several places, on tree trunks, on dead wood, and on the roof of the laboratory. Part of the material collected is sufficiently different to warrant a varietal name.

CRUSTOSE FORMS

Among the crustose forms I found much that was interesting and new. In number of forms, they equalled about half the total number collected. Much work still remains to be done, before a final report can be made on what was collected.

I shall mention first *Haematomma puniceum*. It, on account of its brilliant scarlet apothecia, is sure to attract attention. It was not very abundant, and was very much at home on the cedars in the garden. It seemed to me much handsomer than our southern species.

Another Lichen that was only occasionally found, but which is sure to attract attention, is *Glyphis cicatricosa*. It was found only on trees in the garden at Cinchona.

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[7] Merrill's Lich. Exsic. No. 49.

Species of Graphis and Arthonia were found in abundance. Almost every tree trunk, especially if it was smooth, had, among other crustose forms, one or more species of Graphis and Arthonia. Species thus far determined seem to be the following: *Arthonia complanata, A. didyma, Arthothelium macrotheca, Graphis glaucoderma, G. scripta.*

Three species of Caloplaca were found, none of which are as yet satisfactorily determined. *Chiodecton sanguineum* was found quite frequently. This pretty bark Lichen delights to expose itself to the brightest sunshine. Although so common, I found no specimen in fruit. *Cyphelium tigillare* was found. It was not common. What little was found, was growing on bark. *Diploschistes scruposus* was quite common. It grew only on rocks, or on the soil in between the rocks, on slopes devoid of trees and exposed to the hot sun. On the sunny slopes along the Latimer River trail, it was very common, being usually associated with *Coccocarpia pellita.*

Several species of Lecanora were found: *Lecanora albella, L. varia,* and *L. subfusca,* the latter on rocks, the other two on tree trunks. *L. varia* also occurs on dead wood. Species of Leptotrema, Thelotrema, Ocellularia, and Phaeotrema were also common. Superficially they look much alike, and are all found on tree trunks along the shady trails. They are readily recognized by the tiny punctures, the ostioles of the apothecia, scattered all over the thallus. With some the tiny openings are very minute, with others they are quite conspicuous.

Another common crustose Lichen was *Lopadium leucoxanthum.* It grew on the bark of various trees, and in various situations, generally, however, more or less sunny ones. *Microthelia thelena* was found on our trip to Green River, on trees, at 3500 feet altitude. I failed to find it at the higher elevations. Several species of Pertusaria were found. Some grew on rocks in the bright sunshine, others on trees. Most of them have not as yet been satisfactorily determined. *Pyrenula mamillana* was another common Lichen found on tree trunks. It was at its best, however, at slightly lower altitudes than at Cinchona, at Green River, 3500 feet altitude, and at Clyde River, 4000 feet altitude. Lecidea, too, was represented, but none of the species found have as yet been identified. Lastly, *Verrucaria calciseda* must be mentioned. One was sure of finding this wherever there was an outcrop of limestone.

EPIPHYLLOUS LICHENS

I now come to a very interesting type of Lichens, the Epiphyllous Lichens. How many of these were found, I am not yet prepared to say, very few of them having been as yet determined. In this connection, I must state that their study, as also the study of all tropical American Lichens is attended with much difficulty. The literature is hard to get hold of, and considerable trouble is encountered in having one's material verified. However, progress is being made, and although much time is being consumed, the work will finally be accomplished.

My concept of an epiphyllous Lichen was considerably changed when I began their study. Here in this wonderful Lichen country, almost any Lichen may become epiphyllous, and I was surprised to find such Lichens as *Usnea florida*, *Sticta aurea*, and species of Leptogium, of Parmelia, of Theloschistes, and of Lecanora growing as epiphylls. However, I do not think that anyone ever thinks of these as characteristically leaf-inhabiting Lichens. Some individuals of these Lichens, in such a favorable climate, become epiphyllous merely by accident. Many other Lichens, on the contrary, seem peculiar to leaves, and were never found anywhere else. Such Lichens I would call truly epiphyllous Lichens. The leaves of some plants evidently furnished ideal substrata, whereas the leaves of other plants never harbored a single specimen. The leaves of Podocarpus, for example, were literally covered with epiphyllous Lichens.

Only a few of these strictly epiphyllous species have thus far been determined. Among these are a Pyrenula-like species, evidently, *Pyrenula* (*Porina*) *epiphylla*, occurring on Podocarpus; an Opegrapha, which seems to be *O. phyllobia*, on Callistemon; and *Pilocarpon tricholoma*, growing on cypress.

Another interesting phase of my study of the Lichens of Cinchona, was listing the number and kinds of species growing on each of the various trees and shrubs, and on the buildings around the garden. Thus on a rose-bush near the house grew the following: *Usnea florida*, *Lecanora varia*, *L. subfusca*, *Ramalina* sp., *Parmelia* sp., *Lecidea* sp., *Usnea hirta*, *Graphis* sp., *Pertusaria* sp., *Collema* sp., and *Haematomma puniceum*.

The bamboos were singularly free from Lichens, and yet on nearly all of them grew *Opegraphela filicina*.

A comparative study was made of the Lichens found on a Cryptomeria and those found on two Junipers. One might think that the Cryptomeria would harbor practically the same species that were found on the Junipers. But there were marked differences. Cryptomeria was very sparsely inhabited by Graphis, Arthonia, Lecanora, and Pertusaria. On the other hand, it seemed to be the ideal host for a Calicium, and for a species of Lecidea. Again, Parmelia found the Cryptomeria to its liking, whereas, Sticta preferred the Junipers.

I was rather surprised to find that over 20 species of Lichens grew on the roof of our laboratory. Usnea species, and Cladonia species predominated, but it seemed that almost any Lichen might be expected; any species that could live on old wood, on rotting wood, or on humus.

University of Maryland,
June, 17th, 1921

SPHAGNUM USED AS A SURGICAL DRESSING IN GERMANY DURING THE WORLD WAR

J. W. Hotson

During the recent war much attention was given, especially in Great Britain, to the making of surgical dressings from sphagnum moss. Even before the United States entered the war these dressings were in quite general use in the